Western Massachusetts Electric

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October 12, 2005

Ms. Mary L. Cottrell
Secretary
Dept. of Telecommunications & Energy
One South Station
Boston, MA 02110

Re: Docket No. DTE 04-116 - Investigation into Quality of Service Provided by LDC's

Dear Ms. Cottrell:

This letter provides the response to requests for the information listed below.
Response to DTE-LDC 6 Interrogatories dated 10/03/2005
DTE-LDC 6 – 001, 002, 003, 004

Very truly yours,

Stephen Klionsky

SK/jms
cc: Service List

Witness: **Michael T. Smith**
Request from: **Department of Telecommunications and Energy**

Question:
As an alternative to mandatory inspection and maintenance guidelines, please identify new Service Quality performance measures to realize the effective maintenance of your system?

Response:
WMECO believes that, overall, the existing Service Quality performance measures do a good job of reflecting the service quality delivered to our customers. These measures, among other things, show how often customers lose service and for how long. Inspection and maintenance clearly plays in to customers' service quality because if WMECO does not do a good job of inspecting and maintaining its facilities our existing service quality performance will decline. So, inspection and maintenance are already built into the existing service quality guidelines but are one step removed from the service that customers actually experience.

WMECO has not experienced, in its opinion, significant problems with inspection and maintenance in its recent history. To penalize WMECO and its customers by imposing new requirements for problems that may be perceived to exist elsewhere is unfair. Customers would be penalized because measures that require mandatory inspection and maintenance are likely to require significant expenditures by WMECO. These costs will ultimately have to be passed on to customers. At a time when total electricity costs are soaring and customers are having a difficult time paying their bills, WMECO would recommend against such an approach.

WMECO has no objection to collecting data on manhole incidents and other events that may be connected to inspection and maintenance. Should WMECO have adverse experience in these areas the Department can always revisit the issue and determine, at that future time, whether mandatory inspection and maintenance programs are necessary and/or whether performance guidelines connected specifically to inspection and maintenance are warranted.

Witness: **Michael T. Smith**
Request from: **Department of Telecommunications and Energy**

Question:
Using the Company's available historical outage information, please provide, in an active excel spreadsheet, a calculated required minimum number of customers affected to qualify for exclusion under IEEE-1366, med and the associated values of " (Alpha), $ (Beta), Tmed , SAIDI, and total customer minute interruption for the years 2000, 2001, 2002, 2003, and 2004, for each of the following assumed interruption durations: 1minute, 5 minutes, 60 minutes, 360 minutes, 720 minutes, 1,440 minutes and 2,880 minutes.

Response:
WMECO has strongly supported the implementation of IEEE 1366 in this proceeding as the preferred method of reporting reliability statistics. WMECO finds the concept of mixing customer thresholds with the IEEE 1366 methodology to be a difficult concept to grasp. The IEEE 1366 methodology evaluates each customer outage event on its own, where each outage is a unique event, involving a unique set of customers, for a specific duration of time. Exclusions under the IEEE 1366 standard are not based strictly on the total number of customers affected by outages during any significant event. Rather, they are based on what the customers who are affected by outages actually experience for duration of the outages for each group of customers. WMECO finds it difficult in responding to this question to provide an analysis of customers affected, for the durations specified in the question, utilizing the IEEE 1366 methodology, because of the mixing of the two concepts. However, we have attempted to produce a calculation of the number of customers that would have to be affected for the specified time durations to produce exclusions. The assumption used in the answer is that all the customers calculated would have to be out for the specified duration, a condition that in real life, would be impossible to replicate. Provided in the attachment below is a table which provides the calculated values of Alpha, Beta, and Tmed for the years 2000 through 2004 for WMECO. The following definitions are utilized in providing this information:

Reporting Year	Year being evaluated
Start Date	The start date of the IEEE specified period used to evaluate the value of Tmed
End Date	The end date of the IEEE specified period used to evaluate the value of Tmed
Alpha	The average of the logarithms of the daily SAIDI values for the period
Beta	The standard deviation of the logarithms of the daily SAIDI values for the period
Tmed	The SAIDI exclusion threshold

	Evaluation Period	
Reporting Year	**Start Date**	**End Date**
2000	01-Jan-95	31-Dec-99
2001	02-Jan-96	31-Dec-00
2002	02-Jan-97	31-Dec-01
2003	01-Jan-98	31-Dec-02
2004	01-Jan-99	31-Dec-03

WMECO	**2000**	**2001**	**2002**	**2003**	**2004**
SAIDI IEEE	96.61	81.89	112.10	92.27	107.89
alpha	-2.79979	-2.84017	-2.81687	-2.74	-2.71674
beta	2.07495	2.06884	2.00149	1.98	2.00505
Tmed	10.8873	10.2979	8.9071	9.18	9.93
Customers Served	209,288	210,539	211,625	212,823	213,417

Minutes of Duration	**2000**	**2001**	**2002**	**2003**	**2004**
1	2,278,581	2,168,110	1,884,965	1,954,290	2,119,956
5	455,716	433,622	376,993	390,858	423,991
60	37,976	36,135	31,416	32,571	35,333
360	6,329	6,023	5,236	5,429	5,889
720	3,165	3,011	2,618	2,714	2,944
1,440	1,582	1,506	1,309	1,357	1,472
2,880	791	753	655	679	736

Witness: **Michael T. Smith**
Request from: **Department of Telecommunications and Energy**

Question:
Regarding line loss, each electric company indicated that line loss was equal to the difference between energy requirement and energy sold, and that the loss includes various components such as actual system loss, theft, etc. Please list all the various components that your Company includes in reporting line loss, and briefly describe why each component is included in the line loss.

Response:
Line loss values contain a variety of components. Embedded within the total line loss values are electrical losses, theft, and unaccounted for energy. When losses are determined the Company cannot differentiate how much of the losses are attributable to any single component. These components are all collectively embedded within the loss value which is the difference between the energy requirements and the energy sold.

There are engineering estimates of electrical losses as noted in the response to Q-DTE-LDC 6-004.

Witness: **Michael T. Smith**
Request from: **Department of Telecommunications and Energy**

Question:
Regarding line loss, please describe: (a) how the distribution and transmission loss factors that are reported to ISO-NE for the load settlement process are determined, include all supporting documents and a copy of the most recently reported loss factors for each voltage level; (b) how often the distribution and transmission loss factors reported to ISO-NE are updated; (c) what steps the Company currently takes to reduce its loss factors, and what steps the Company plans to take in the future to reduce its loss factors; (d) how the Company benefits, if at all, from reducing its loss factors; (e) what steps the Department could take to reduce loss factors; (f) for what purposes, other than load settlement, the Company uses its loss factors, describe each purpose and provide any supporting documents.

Response:
(a) The load settlement reporting process does not require the Company to report any specific distribution and/or transmission engineering loss factors to ISO-NE but does utilize estimated loss values. To satisfy the ISO-NE load settlement reporting process the Company provides ISO-NE with hourly generation values, tie line values and the load values associated with the market participants that have the wholesale load obligations.

In order to determine the requirements on the system the Company must develop an hourly sum of generation, plus the net sum of tie line values flowing in and out of the system, less the estimated losses on the low voltage pool transmission facility (LV-PTF). The generation and tie line values are directly metered. The LV-PTF hourly losses are estimated by ISO-NE and provided to the Company each day. These LV-PTF losses represent the ISO-NE estimate of the PTF losses that are embedded within the metered generation and tie line values reported by the Company. These LV-PTF losses result from the fact that certain physical metering points are not located exactly at the PTF boundary. The sum of the hourly LV-PTF losses on the WMECO system during 2004, as estimated by ISO-NE, was 38,597 MWH. A sample report from ISO-NE for LV-PTF losses on the WMECO system on January 1, 2004, can be found in Attachment 1.

The following is a link to the ISO New England Manual for Market Rule 1 Accounting Manual M-28. Section 12.3.5.5 entitled Metering Domain Loss Correction describes the process for determination of LV-PTF losses.
http://www.iso-ne.com/rules_proceds/isone_mnls/index.html

Determining the wholesale load obligations of the market participants serving load on the system also relies on the use of estimated electrical losses as part of the load determination process. For each retail customer connected to the WMECO system the Company uses either actual hourly metered usage values as measured at the retail customer location or estimates the hourly usage at the customer location. Added to those hourly values are estimated hourly electrical losses below the PTF of 2.39% for customers served at a primary level, and 5.44% for customers served at a secondary level. The sum of all customer hourly values plus non-PTF electrical losses are then allocated to the appropriate wholesale supplier. If the sum of the wholesale supplier load values is different than the requirements (sum of generation, tie lines less LV-PTF losses) the difference is allocated to the estimated

portion of the customer loads so that the hourly sum of the wholesale supplier loads is equal to the requirements value each hour.

The 2.39% primary level losses and the 5.44% secondary level losses are derived from the study entitled "Determination of Loss Factors for the Northeast Utilities System" dated October 1, 1989. Table 1 of this report (see Attachment 2) shows the average historical static electrical loss only percentages from generation source to the customer meter. The primary distribution losses are 4.54%, less transmission losses of 2.21% results in 2.33% losses for primary level customers. For secondary customers the secondary distribution losses are 7.37% less transmission losses of 2.21% results in 5.16% losses. For load estimation purposes, where the starting point is the value at the customer meter rather than the generation source, the losses must be determined from the other direction. Mathematically this is achieved with the following equation: 1 / (1 - loss percentage). This equation produces the 2.39% and 5.44% losses identified above.

(b) As mentioned in response to (a) above, the Company does not specifically report distribution and transmission loss factors to ISO-NE for load settlement purposes. As also mentioned in response to (a) above, ISO-NE determines the hourly LV-PTF losses on a daily basis

(c) WMECO incorporates several measures in the design and construction of its distribution system aimed at reducing distribution engineering line losses. Larger wire sizes are utilized when replacing older conductors. WMECO also performs phase balancing on its three phase system, where appropriate. Another method WMECO employs to a great extent is the installation of capacitor banks. Capacitors are installed for power factor and voltage correction, which also reduces reactive current flows. WMECO also purchases distribution transformers that meet efficiency standard NEMA TP1-1996.

(d) WMECO benefits from the initiatives in c. above by way of marginally reduced current flows and better voltage profiles on its circuits. Lower engineering losses means lower overall costs to customers as you require less requirements to serve the customers.

(e) Distribution engineering line losses are difficult to control since they are partly a function of customer demands. The DTE should encourage the LDC's to continue to utilize loss reduction measures such as those identified in c. above.

(f) Engineering losses are a sub section of the total defined losses in the Delivery Efficiency ("DE") factor along with company use, theft and unaccounted for losses. DE factors are a part of the payment formula utilized in the Basic Service wholesale contracts and they are also used when developing the Company's forecasted requirements.

C Operating Company Losses Report
C OI_LOSSESMD_000000000_2004010100_20040102120002.CSV
C Date: 01/01/2004 and Version: 01/02/2004 12:00:02 GMT
H Trading Int Western Mass Electric Company

H	Hour End	MWh
D	1	-2.292
D	2	-2.276
D	3	-2.175
D	4	-2.083
D	5	-2.1
D	6	-2.302
D	7	-1.836
D	8	-1.75
D	9	-1.849
D	10	-2.476
D	11	-3.187
D	12	-3.701
D	13	-4.167
D	14	-3.732
D	15	-3.16
D	16	-2.973
D	17	-3.933
D	18	-5.364
D	19	-5.845
D	20	-6.108
D	21	-5.941
D	22	-5.168
D	23	-3.97
D	24	-3.228

T 24 lines

TABLE 1

TOTAL SYSTEM LOSSES EXPRESSED AS A PERCENTAGE
OF LOAD AT VARIOUS SYSTEM LOCATIONS

	PEAK HOUR	ON PEAK PERIOD	OFF PEAK PERIOD	AVERAGE
TRANSMISSION	1.79	1.98	2.42	2.21
BULK SUBSTATION	2.30	2.46	2.92	2.70
PRIMARY DISTRIBUTION (ALL VOLTAGES)	5.12	4.58	4.50	4.54
PRIMARY DISTRIBUTION (13.2 KV AND ABOVE)	4.52	4.14	4.17	4.15
DISTRIBUTION S/S (LV)	5.86	5.17	4.97	5.06
DISTRIBUTION TRANSFORMER	7.58	6.92	7.16	7.05
SECONDARY DISTRIBUTION	8.34	7.33	7.40	7.37